

**PATENT**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

**In re Application of:**

|                         |                     |                      |                   |
|-------------------------|---------------------|----------------------|-------------------|
| <b>Application No.:</b> | 10/565,503          | <b>Examiner:</b>     | Watson, Robert C. |
| <b>Filing Date:</b>     | January 23, 2006    | <b>Art Unit:</b>     | 3723              |
| <b>First Inventor:</b>  | K. YONEZAWA         | <b>Customer No.:</b> | 23364             |
| <b>Attorney No.:</b>    | YONE3019/JJC/PMB    | <b>Confirm. No.:</b> | 9795              |
| <b>For:</b>             | <b>CLAMP DEVICE</b> |                      |                   |

**AMENDED APPEAL BRIEF IN RESPONSE TO OFFICE ACTION OF  
APRIL 16, 2009**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

This is an amended appeal brief filed pursuant to the applicant's appeal to the Board of Patent Appeals and Interferences from the final rejection of claims 1-9 in the above identified application.

The filing of this amended appeal brief is made within one month of the mailing of the Notification of Non-Compliant Appeal Brief on April 16, 2009, and is considered timely.

**I. REAL PARTY IN INTEREST**

The real party in interest is the assignee of record: KOSMEK LTD. (Hyogo, Japan).

**II. RELATED APPEALS AND INTERFERENCES**

A notice of appeal was filed in commonly assigned U.S. application no. 10/572,576 on April 23, 2009.

A notice of appeal was filed in commonly assigned U.S. application no. 10/575,904 on December 18, 2008.

A notice of appeal was filed in commonly assigned U.S. application no. 10/570,892 on August 1, 2008.

**III. STATUS OF CLAIMS**

A. Status of Claims in Proceeding

Claims 1-9 are currently pending in the above-identified application.

Claims 1-9 are rejected under 35 U.S.C. § 103(a).

B. Identification of Appealed Claims

The applicant chooses to appeal from the rejection of claims 1-9.

Claims 2-9 depend from claim 1, and their patentability is based on their dependency from claim 1 and their individually recited features.

A copy of all the pending claims, as presented in the last entered amendment dated October 26, 2007, is included in the attached Claims Appendix.

**IV. STATUS OF AMENDMENTS**

There are no outstanding amendments to the claims. The last amendment to the claims was filed on October 26, 2007, and appears to have been entered. The Office action dated November 21, 2007 is responsive to the communication, including the amendment to the claims, filed on October 26, 2007.

**V. SUMMARY OF CLAIMED SUBJECT MATTER**

For the purposes of appeal, the rejection of claims 1-9 is appealed.

A. Claim 1

The embodiment of pending claim 1 requires a clamping apparatus (Figs. 1A-4B, 5A and 5B, 6A and 6B, 7A and 7B, 8, 10, and 11; paragraphs [0004] and [0022]).

The clamping apparatus includes a first block (1) (Figs. 1A, 8, and 10; paragraphs [0005] and [0023]) provided with a support surface (S) (Figs. 1A, 1B, 2, 3, 5A, 6A, 7A, 8, 10, and 11; paragraphs [0005], [0008], [0013], [0033], and [0044]) that receives a supported surface (2a) (Figs. 1A, 3, 8, 10; paragraphs [0008], [0023], [0034], [0039], and [0040]) of a second block (2) (Figs. 1A, 3, 8, and 10; paragraphs [0005], [0023], [0039], and [0040]).

The clamping apparatus also includes a drive member (11) (Figs. 1A, 2, 3, 5A, 6A, 7A, 8, and 10; paragraphs [0005], [0007], [0024], and [0025]) axially movably inserted into the first block (1) (Figs. 1A, 2, 3, 5A, 6A, 7A, 8, and 10; paragraph [0005]).

The clamping apparatus also includes a pull rod (18) (Figs. 1A, 2, 3, 4A, 4B, 5A, 5B, 6A, 6B, 7A, 7B, 8, 9, 10, and 11; paragraph [0005]) projected toward a leading end (unlabeled Figs. 1A, 2, 3, 5A, 6A, 7A, 8, 10, and 11; paragraph [0005]) beyond the support surface (S) (Figs. 1A, 1B, 2, 3, 5A, 6A, 7A, 8, 10, and 11; paragraph [0005]) of the first block (1) (Figs. 1A, 8, and 10; paragraphs [0005] and [0023]), and the pull rod (18) (Figs. 1A 2, 3, 4A, 4B, 5A, 5B, 6A, 6B, 7A, 7B, 8, 9, 10, and 11; paragraph [0005]) is connected to the drive member (11) (Figs. 1A, 3, 6A, 8, and 10; paragraphs [0005], [0007], and [0025]).

The clamping apparatus also includes an inner engaging member (38) (Figs. 1A, 2, 3, 4A, 4B, 5A, 5B, 6A, 6B, 7A, 7B, 8, 9, 10, and 11; paragraphs [0005] and [0028]) axially movably arranged (Figs. 1A, 2, 3, 4A, 4B, 5A, 5B, 6A, 6B, 7A, 7B, 8, 9, 10, and 11; paragraphs [0005], [0028], [0029], and [0035]) on an outer periphery (unlabeled Figs. 1A, 2, 3, 4A, 4B, 5A, 5B, 6A, 6B, 7A, 7B, 8, 9, 10, and 11;

paragraphs [0005] and [0028]) of the pull rod (18) (Figs. 1A, 2, 3, 4A, 4B, 5A, 5B, 6A, 6B, 7A, 7B, 8, 9, 10, and 11; paragraph [0005]), the inner engaging member (38) (Figs. 1A, 2, 3, 4A, 4B, 5A, 5B, 6A, 6B, 7A, 7B, 8, 9, 10, and 11; paragraphs [0005] and [0028]) is adapted to be radially movable with respect to the first block (1) (Figs. 1A, 8, and 10; paragraphs [0005] and [0028]), and the inner engaging member (38) (Figs. 1A, 2, 3, 4A, 4B, 5A, 5B, 6A, 6B, 7A, 7B, 8, 9, 10, and 11; paragraph [0005]) is adapted to be advanceable toward the leading end (unlabeled Figs. 1A, 2, 3, 5A, 6A, 7A, 8, 10, and 11; paragraph [0005]) by a pressing arrangement (41) (Figs. 1A, 2, 3, 5A, 6A, 7A, 8, 10, and 11; paragraphs [0005], [0006], [0008], [0029], [0039], [0044], [0049], and [0050]).

The clamping apparatus also includes a plurality of outer engaging members (39) (Figs. 1A, 2, 3, 4A, 4B, 5A, 5B, 6A, 6B, 7A, 7B, 8, 10, and 11; paragraphs [0005], [0008], [0012], and [0030]), to be inserted into an engaging hole (3) (Figs. 1A, 3, 8, and 10; paragraphs [0005], [0008], [0009], [0023], [0030]) of the second block (2) (Figs. 1A, 3, 8, and 10; paragraphs [0005], [0023], [0039], and [0040]) are arranged on an outer periphery (unlabeled Figs. 1A, 2, 3, 4A, 4B, 5A, 5B, 6A, 6B, 7A, 7B, 8, 10, and 11) of the inner engaging member (38) (Figs. 1A, 2, 3, 4A, 4B, 5A, 5B, 6A, 6B, 7A, 7B, 8, 9, 10, and 11; paragraphs [0005] and [0028]), the plurality of outer engaging members (39) (Figs. 1A, 2, 3, 4A, 4B, 5A, 5B, 6A, 6B, 7A, 7B, 8, 10, and 11; paragraphs [0005], [0008], and [0030]) are adapted so as to wedge-engage with the inner engaging member (38) (Figs. 1A, 2, 3, 4A, 4B, 5A, 5B, 6A, 6B, 7A, 7B, 8, 10, and 11; paragraphs [0005], [0008], and [0030]) from the leading end side (unlabeled Figs. 1A, 2, 3, 5A, 6A, 7A, 8, 10, and 11; paragraphs [0005], [0008], and [0030]), and an output portion (46) (Figs. 1A, 2, 3, 5A, 6A, 7A, 8, 10, and 11; paragraphs [0005] and [0030]) of the pull rod (18) (Figs. 1A, 2, 3, 4A, 4B, 5A, 5B, 6A, 6B, 7A, 7B, 8, 9, 10, and 11; paragraph [0005]) is connected to these outer engaging members (39) (Figs. 1A, 2, 3, 5A, 6A, 7A, 8, 10, and 11; paragraphs [0005] and [0030]).

The plurality of outer engaging members (39) (Figs. 1A, 2, 3, 4A, 4B, 5A, 5B, 6A, 6B, 7A, 7B, 8, 10, and 11; paragraphs [0005], [0008], [0012], and [0030]) are also adapted to be radially inwardly movable by a returning arrangement (44) (Figs. 1A, 2, 3, 5A, 5B, 6A, 7A, 8, 10, and 11; paragraphs [0005], [0032], [0043], [0046], and [0047]).

B. Dependent claims

The embodiment of pending claim 2 requires the clamping apparatus as discussed above with respect to claim 1 and further includes a cover member (31) (Figs. 1A, 2, 3, 5A, 6A, 6B, 7A, 7B, 8, 10, and 11; paragraphs [0011], [0012], and [0031]) that covers the plurality of outer engaging members (39) (Figs. 1A, 2, 3, 5A, 6A, 6B, 7A, 7B, 8, 10, and 11; paragraphs [0011], [0012], and [0031]) from the leading end side (unlabeled) and that is provided on a leading end portion (unlabeled) of the pull rod (18) (Figs. 1A, 2, 3, 5A, 6A, 6B, 7A, 7B, 8, 10, and 11; paragraphs [0011], [0012], and [0031]).

The embodiment of pending claim 3 requires the clamping apparatus as discussed above with respect to claim 2 and further includes a guide surface (36) (Figs. 1A, 2, and 11; paragraph [0032]) that narrows toward the leading end (unlabeled) and is formed on an outer periphery (unlabeled) of the cover member (31) (Figs. 1A, 2, 3, 5A, 6A, 6B, 7A, 7B, 8, 10, and 11; paragraphs [0011], [0012], and [0031]).

The embodiment of pending claim 4 requires the clamping apparatus as discussed above with respect to claim 2 and further requires the cover member (31) (Figs. 1A, 2, 3, 5A, 6A, 6B, 7A, 7B, 8, 10, and 11; paragraphs [0011], [0012], and [0031]) and the plurality of outer engaging members (39) (Figs. 1A, 2, 3, 4A, 4B, 5A, 5B, 6A, 6B, 7A, 7B, 8, 10, and 11; paragraphs [0005], [0008], [0012], and [0030]) to be connected radially relatively movably and axially movably together (Figs. 1A, 2, 3, 5A, 6A, 6B, 7A, 7B, 8, 10, and 11; paragraph [0012]).

The embodiment of pending claim 5 requires the clamping apparatus as discussed above with respect to claim 4 and further requires that the plurality of outer



engaging members (39) (Figs. 1A, 2, 3, 4A, 4B, 5A, 5B, 6A, 6B, 7A, 7B, 8, 10, and 11; paragraphs [0005], [0008], [0012], and [0030]) are radially movably supported on a peripheral wall (31a) (Figs. 1A, 2, 6A, 6B, 7A, 7B, and 11; paragraphs [0012], [0047] and [0048]) of the cover member (31) (Figs. 1A, 2, 3, 5A, 6A, 6B, 7A, 7B, 8, 10, and 11; paragraphs [0011], [0012], and [0031]).

The embodiment of pending claim 6 requires the clamping apparatus as discussed above with respect to claim 1 and further includes the first block (1) (Figs. 1A, 8, and 10; paragraphs [0005] and [0023]) being provided with a plurality of the support surfaces (S) (Figs. 1A, 1B, 2, 3, 5A, 6A, 7A, 8, 10, and 11; paragraphs [0005], [0008], [0013], [0033], and [0044]) circumferentially at intervals (Fig. 1B; paragraph [0013]), and within a gap (unlabeled Fig. 4A) between adjacent outer engaging members (39) (Figs. 1A, 2, 3, 4A, 4B, 5A, 5B, 6A, 6B, 7A, 7B, 8, 10, and 11; paragraphs [0005], [0008], [0012], and [0030]) is formed a discharge port (51) (Figs. 1B and 4A; paragraphs [0013]) for a cleaning fluid (unlabeled paragraph [0013]), and each discharge port (51) (Figs. 1B and 4A; paragraphs [0013]) is directed toward a respective support surface (S) (Figs. 1B and 4A; paragraphs [0013]).

The embodiment of pending claim 7 requires the clamping apparatus as discussed above with respect to claim 1 and further requires the pull rod (18) (Figs. 1A, 2, 3, 4A, 4B, 5A, 5B, 6A, 6B, 7A, 7B, 8, 9, 10, and 11; paragraph [0005]) urged toward the leading end (unlabeled Figs. 1A, 2, 3, 5A, 6A, 7A, 8, 10, and 11; paragraph [0013]) by a balancing elastic member (27) (Figs. 1A, 3, 8, and 10; paragraph [0013]).

The embodiment of pending claim 8 requires the clamping apparatus as discussed above with respect to claim 1 and further requires the pull rod (18) (Figs. 1A, 2, 3, 4A, 4B, 5A, 5B, 6A, 6B, 7A, 7B, 8, 9, 10, and 11; paragraph [0005]) to be relatively radially movable with respect to the drive member (11) (Figs. 1A, 3, 6A, 8, and 10; paragraphs [0013] and [0014]).

The embodiment of pending claim 9 requires the clamping apparatus as discussed above with respect to claim 1 and further requires the inner engaging member (38) (Figs. 1A, 2, 3, 4A, 4B, 5A, 5B, 6A, 6B, 7A, 7B, 8, 9, 10, and 11; paragraphs [0005] and [0028]) to be arranged radially movably with respect to the pull rod (18) (Figs. 1A, 2, 3, 4A, 4B, 5A, 5B, 6A, 6B, 7A, 7B, 8, 9, 10, and 11; paragraph [0014]).

**VI. GROUND OF REJECTION TO BE REVIEWED ON APPEAL**

Whether claims 1, 4-6, 8, and 9 are rendered obvious under 35 U.S.C. § 103(a) by the proposed combination of U.S. patent no. 6,095,509 (*Yonezawa et al.*), U.S. patent no. 4,059,036 (*Hartley*), U.S. patent no. 4,767,125 (*Barry et al.*), and U.S. patent no. 6,604,738 (*Haruna*).

Whether claims 2, 3, and 7 are rendered obvious under 35 U.S.C. § 103(a) by the proposed combination of U.S. patent no. 6,095,509 (*Yonezawa et al.*), U.S. patent no. 4,059,036 (*Hartley*), U.S. patent no. 4,767,125 (*Barry et al.*), and U.S. patent no. 6,604,738 (*Haruna*) and in further combination with U.S. patent no. 6,024,354 (*Yonezawa*).

## VII. ARGUMENT

As discussed in detail below, the basis for the final rejection of claims 1-9 does not satisfy the requirements of *prima facie* obviousness of the subject matter recited in the rejected claims. Therefore, reversal of the rejection of claims 1-9 is respectfully requested.

### A. Claim Rejections

Claims 1, 4-6, 8, and 9 in this application are rejected under 35 U.S.C. § 103(a) as being unpatentable over the proposed combination of U.S. patent no. 6,095,509 (*Yonezawa et al.*), U.S. patent no. 4,059,036 (*Hartley*), U.S. patent no. 4,767,125 (*Barry et al.*), and U.S. patent no. 6,604,738 (*Haruna*).

Claims 2, 3, and 7 in this application are rejected 35 U.S.C. § 103(a) as being unpatentable over the proposed combination of U.S. patent no. 6,095,509 (*Yonezawa et al.*), U.S. patent no. 4,059,036 (*Hartley*), U.S. patent no. 4,767,125 (*Barry et al.*), and U.S. patent no. 6,604,738 (*Haruna*) and in further combination with U.S. patent no. 6,024,354 (*Yonezawa*).

### B. Pertinent Law

In rejecting claims under 35 U.S.C. § 103(a), it is incumbent upon the examiner to establish a factual basis to support the legal conclusion of obviousness. See *In re Fine*, 837 F.2d 1071, 1073, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). In so doing, the examiner is expected to make the factual determinations set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 17, 148 USPQ 459, 467 (1966).

The showings by the examiner are an essential part of complying with the burden of presenting a *prima facie* case of obviousness. See *In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). For ease of review, the analysis used to make findings should be made explicit. See *KSR Intern. Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1741, 82 U.S.P.Q.2d 1385, 1396 (2007) citing *In re Kahn*, 441, F.3d 977, 988, 78 USPQ2d 1329 (Fed. Cir. 2006) “[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some

articulated reasoning with some rational underpinning to support the legal conclusion of obviousness”.

If that burden is met, the burden then shifts to the applicant to overcome the *prima facie* case with argument and/or evidence. Obviousness is then determined on the basis of the evidence as a whole. See *id.*; *In re Hedges*, 783 F.2d 1038, 1039, 228 USPQ 685, 686 (Fed. Cir. 1986).

To establish *prima facie* obviousness of a claimed invention, all of the claim limitations must be taught or suggested by the prior art. See *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). It follows that all of the words recited in a claim must be considered in judging the patentability of that claim against the prior art. *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). In particular, the question of whether the claimed invention as a whole would have been obvious, and not just whether the differences would have been obvious, must be addressed. *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 218 USPQ 871 (Fed. Cir. 1983); *Schenck v. Nortron Corp.*, 713 F.2d 782, 218 USPQ 698 (Fed. Cir. 1983).

The meanings of the claim terms of the pending claims are to be "given their broadest reasonable interpretation consistent with the specification." See *Phillips v. AWH Corp.*, 415 F.3d 1303, 75 USPQ2d 1321 (Fed. Cir. 2005).

- C. The proposed combination of the Yonezawa ‘509, Hartley, Barry, and Haruna patents does not amount to a *prima facie* case of obviousness with respect to claim 1

The discussion below is focused on the apparatus of independent claim 1. The dependent claims 4-6, 8, and 9 stand or fall with independent claim 1.

Reversal of the rejection of claim 1 is respectfully requested on the basis that the *Yonezawa ‘509, Hartley, Barry, and Haruna* patents, whether considered individually or collectively, fail to disclose or suggest every feature of the clamping apparatus according to claim 1.

As will be discussed below, the proposed combination of the *Yonezawa* '509, *Hartley*, *Barry*, and *Haruna* patents fails to disclose at least an inner engaging member that is axially movably arranged on an outer periphery of a pull rod, a plurality of outer engaging members arranged on an outer periphery of an inner engaging member, and an output portion of a pull rod connected to the outer engaging members, all as required by pending claim 1.

Accordingly, claim 1 is patentable in view of the proposed combination of teachings of the *Yonezawa* '509, *Hartley*, *Barry*, and *Haruna* patents, since the proposed combination of these references does not constitute a case of *prima facie* obviousness.

By way of review, the embodiment of pending claim 1 requires a clamping apparatus having a first block for supporting a second block thereon. A drive member is axially movably inserted into the first block and a pull rod extending beyond a support surface of the first block is connected to the drive member. An inner engaging member is axially movably arranged on the outer periphery of the pull rod. The inner engaging member is also adapted to be radially moveable with respect to the first block. A plurality of outer engaging members is arranged on an outer periphery of the inner engaging member. The outer engaging members are adapted to wedge-engage with the inner engaging member from a leading end side. An output portion of the pull rod is connected to the outer engaging members.

By way of the recited configuration, the embodiment of pending claim 1 requires the following three elements to be arranged in the order recited in a radial direction from a center to a periphery. In particular, the pull rod (18) is positioned in the center, the inner engaging member (38) is positioned on the outer periphery of the pull rod (18), and the plurality of outer engaging members (39) is positioned on an outer periphery of the inner engaging member. The inner engaging member (38) is axially movably arranged on the outer periphery of the pull rod (18), and is further adapted to be radially moveable with respect to the first block (1).

The proposed combination of the *Yonezawa* '509, *Hartley*, *Barry*, and *Haruna* patents fails to disclose at least an inner engaging member that is axially movably arranged on an outer periphery of a pull rod, a plurality of outer engaging members arranged on an outer periphery of an inner engaging member, and an output portion of a pull rod connected to the outer engaging members, all as required by pending claim 1.

Turning first to the *Yonezawa* '509 patent, a clamping apparatus having a pull rod (12) is disclosed. An annular collet member (13) is vertically movably arranged around the outer periphery of the pull rod (col. 4, lines 28-29). A peripheral wall of the collet (13) includes a vertical slit (25) to allow contraction and expansion of the collet (col. 4, lines 30-31). An upper half portion of the collet member (13) forms an engaging member (14) (col. 4, lines 31-32).

The upper portion of the pull rod (12) of the *Yonezawa* '509 patent is provided with a tapered outer peripheral surface (12a) that narrows downwardly (col. 4, lines 22-25). The engaging member (14) of the collet (13) has a tapered inner peripheral surface (14a) externally fitted onto the tapered outer peripheral surface (12a) of the pull rod (12) (col. 4, lines 32-35). In other words, the pull rod (12) is configured to wedge-engage the engaging member (14) from the leading end of the engaging member (14). The collet (13) is further pushed up by a push spring (27) and an annular plate (28) (col. 4, lines 38-40).

With this configuration, when the pull rod (12) is moved axially downwards, the tapered outer peripheral surface (12a) causes the engaging member (14) to expand radially outward to engage an engaging hole (2) in an object (1) to be fixed, and to be displaced axially downwards against the push spring (27) and an annular plate (28) (col. 1, lines 39-45). In this manner, the object (1) to be fixed is also pulled axially downwards (col. 1, lines 45-46; col. 2, lines 24-27).

As apparently acknowledged on page 2 in the Office action dated September 30, 2008, the *Yonezawa* '509 patent fails to disclose a plurality of outer engaging members arranged on an outer periphery of an inner engaging member and adapted to

wedge-engage with the inner engaging member. Further, since no outer engaging members are described as being arranged on an outer periphery of an inner engaging member and adapted to wedge-engage with the inner engaging member, the *Yonezawa* '509 patent also fails to disclose a plurality of outer engaging members arranged on an outer periphery of the inner engaging member, and an output portion of a pull rod connected to the outer engaging members, all as required by pending claim 1.

The Office action dated September 30, 2008 turns first to the *Hartley* patent to cure these deficiencies of the *Yonezawa* '509 patent.

However, the *Hartley* patent fails to disclose at least an inner engaging member that is axially movably arranged on an outer periphery of a pull rod, a plurality of outer engaging members arranged on an outer periphery of an inner engaging member, and an output portion of a pull rod connected to the outer engaging members, all as required by pending claim 1.

Specifically, the *Hartley* patent discloses an internal shearing member used to support a hollow body (col. 1, lines 4-5). The shearing member includes two identical split rings (1, 2) having a cylindrical outer surface and a frusto-conical inner surface (col. 2, lines 30-32). The rings (1, 2) are coaxially mounted on a pair of plugs (4, 5), which each have outer frusto-conical surface portions that correspond to the inner surface of the rings (1, 2) (col. 2, lines 32-35). The plugs (4, 5) are carried on the end of a mandrel that includes a hollow tube (6) and a rod (7) inserted into the bore of the tube (6) (col. 2, lines 36-41).

The first, outer plug (4) is screwed onto the end of the rod (7), and is thus axially fixed with respect to the rod (7) (col. 2, lines 41-45). The second, inner plug (5) has a bore that is the same inner diameter as the tube (6) and a threaded counterbore (9) that screws onto the end of the tube (6) (col. 2, lines 45-48). As will be understood by a skilled artisan, although the rod (7) is movable within the bore of the plug (5), the inner plug (5) of the *Hartley* patent remains stationary with respect to the tube (6) and the rod (7). When the rod (7) is drawn towards the tube (6), the outer



plug (4) is drawn towards the inner plug (5) and the split rings (1, 2) are forced to expand so that the outer surfaces thereof engage an inner surface of a hollow body to be supported (col. 2, lines 54-56). Shoulders (16, 17) provide stops that define the maximum expansion of the rings (1, 2) (col. 3, lines 3-8).

Neither of the split rings (1, 2) of the *Hartley* patent can be considered to be connected to an output portion of the rod (7), since each of the split rings (1, 2) can freely move on the respective plug portions (4, 5). The *Hartley* patent also fails to disclose a plurality of outer engaging members as required by pending claim 1.

A similar configuration is described with respect to the embodiment shown in Fig. 3 of the *Hartley* patent.

In comparison to the elements recited in pending claim 1, the rod (7) of the *Hartley* patent may be considered to correlate to the pull rod recited in claim 1. However, there is no corresponding inner engaging member disclosed in the *Hartley* patent that is axially movable on an outer periphery of the rod (7), as is required by pending claim 1.

As discussed above, the outer plug (4) is fixedly screwed onto the end of the rod (7). Thus, the outer plug (4) of the *Hartley* patent cannot be considered to be an inner engaging member that is axially movably arranged on an outer periphery of a pull rod as required by pending claim 1.

Similarly, the inner plug (5) of the *Hartley* patent remains stationary while the rod (7) is drawn through the bore of the inner plug (5). Thus, the inner plug (5) of the *Hartley* patent cannot be considered to be an inner engaging member that is axially movably arranged on an outer periphery of a pull rod as required by pending claim 1.

Further, since the second ring (2) is the only ring disclosed in the *Hartley* patent that is adapted to wedge engage the inner plug (5) from the leading end side, the second ring (2) is the only ring which may be considered to correspond to an outer engaging member as required by pending claim 1.

Therefore, a skilled artisan would have to provide the second ring (2) and the inner plug (5) of the *Hartley* patent to the clamp of the *Yonezawa* '509 patent in order to have an outer engaging portion that is adapted to wedge engage an inner engaging portion from the leading end side, as is required by pending claim 1.

The addition of such structure alone to the clamp of the *Yonezawa* '509 patent would be insufficient to create a proper clamp mechanism for the following reasons, discussed in detail below, and thus a skilled artisan would not have made such an alteration. Further, even if such an alteration was made, the proposed combination would still fail to disclose every feature of pending claim 1.

As discussed above, the clamping structure of the *Yonezawa* '509 patent functions such that the engaging member (14) moves axially downwards when the pull rod (12) is moved axially downwards in order to draw the object to be clamped via the wedge-engagement from the leading end of the engaging member (14) of the tapered surfaces (12a, 14a) of the pull rod (12) and the engaging member (14).

Replacement of the pull rod (12) and the engaging member (14) of the *Yonezawa* '509 patent with the rod (7), the plug (5), and the split ring (2) of the *Hartley* patent, without more, would destroy the clamping ability of the clamping apparatus of the *Yonezawa* '509 patent.

This is because in order for the split ring (2) to expand to contact an object, the structure requires the plug (4) and the split ring (1) of the *Hartley* patent, in addition to the rod (7), the plug (5), and the split ring (2) of the *Hartley* patent, so that the movement of the rod (7) can be transmitted via the plug (4) and the split ring (1) to cause the split ring (2) to expand between the plug (4), the split ring (1), and the plug (5).

Accordingly, if a skilled artisan were to modify the *Yonezawa* '509 patent with just the rod (7), the plug (5), and the split ring (2) of the *Hartley* patent, the split ring (2) would not expand to engage an object to be clamped, and thus the clamping function of the *Yonezawa* '509 patent would be destroyed.

If all of the rod (7), the plugs (4, 5), and the split rings (1, 2) of the *Hartley* patent were added to the clamp of the *Yonezawa* '509 patent, the proposed combination would still fail to disclose every feature of pending claim 1.

In particular, since the plug (5) of the *Hartley* patent must remain stationary with respect to the tube (6) and the rod (7) of the *Hartley* patent in order for the rings (1, 2) to expand, and since the plug (5) would be required to correspond to an inner engaging member as recited in pending claim 1, it can be seen that the proposed combination of the *Yonezawa* '509 patent and the *Hartley* patent fails to disclose an inner engaging member that is axially movably arranged on an outer periphery of the pull rod, as is required by pending claim 1.

Further, since as discussed above, neither of the rings (1, 2) of the *Hartley* patent are connected to an output portion of the rod (7) of the *Hartley* patent, the proposed combination of the *Yonezawa* '509 patent and the *Hartley* patent fails to disclose a plurality of outer engaging members that are connected to an output portion of a pull rod, as is required by pending claim 1.

Turning next to the *Barry* patent, while the *Barry* patent does appear to disclose expansion inserts (36), (37) having a plurality of segments (col. 3, lines 3-7), the *Barry* patent does not disclose structure sufficient to overcome the above noted deficiencies in the proposed combination of the *Yonezawa* '509 patent and the *Hartley* patent.

In particular, the *Barry* patent discloses an internal clutch device (10) for firmly grasping the internal surface of a tubular member (col. 1, lines 41-42). The clutch device (10) includes a support member (13) having an axially aligned bore (14) that traverses the length thereof (col. 2, lines 16-22). The support member (13) includes an integrally attached cylindrical end section (15) that shares the bore (14) (col. 2, lines 22-24). A generally tubular spacer (20) is telescoped over the end section (15) (col. 2, lines 28-30). A collet (26) is slidably positioned on the spacer (20) (col. 2, lines 44-46). Cam surfaces (18), (22), (23) and (28) provide contact surfaces for the expansion inserts (36), (37) (col. 3, lines 1-7).

This structure of the *Barry* patent fails to disclose at least an inner engaging member that is axially movably arranged on an outer periphery of a pull rod, a plurality of outer engaging members arranged on an outer periphery of an inner engaging member, and an output portion of a pull rod connected to the outer engaging members, all as required by pending claim 1.

Similarly, while the *Haruna* patent does appear to disclose means for cleaning the fitting surfaces of a clamping apparatus (col. 6, lines 12-13), the *Haruna* patent does not disclose structure sufficient to overcome the above noted deficiencies in the proposed combination of the *Yonezawa* '509 patent and the *Hartley* patent.

In particular, the *Haruna* patent discloses a clamping apparatus having a pull rod (13) supported on a work pallet (3) (col. 5, lines 5-9). A cover block (16) fixed to a clamp pallet (2) includes an annular plug portion (21) (col. 5, lines 18-19, 29-30). An annular shuttle member (23) is externally fitted onto the plug portion (21) (col. 37-38). The plug portion (21) has a cylindrical hole (21a) into which a transmission sleeve (31) is axially movably inserted (col. 5, lines 57-58). Through holes (33) in the transmission sleeve (31) support engaging balls (34) that move radially between an outward disengaging position and an inward engaging position (col. 5, lines 58-65).

However, this structure of the *Haruna* patent fails to disclose at least an inner engaging member that is axially movably arranged on an outer periphery of a pull rod, a plurality of outer engaging members arranged on an outer periphery of an inner engaging member, and an output portion of a pull rod connected to the outer engaging members, all as required by pending claim 1.

Accordingly, each of the *Yonezawa* '509, *Hartley*, *Barry*, and *Haruna* patents fails to disclose or suggest at least an inner engaging member that is axially movably arranged on an outer periphery of a pull rod, a plurality of outer engaging members arranged on an outer periphery of an inner engaging member, and an output portion of a pull rod connected to the outer engaging members, all as required by pending claim 1.

Further, in view of the above discussion, a skilled artisan would not have replaced the pull rod and engaging member of the *Yonezawa* '509 patent with the plugs and split rings of the *Hartley* patent, and even if such a combination were made, the proposed combination would fail to disclose every feature of pending claim 1, and these deficiencies are not overcome by the disclosures of the *Barry* patent and the *Haruna* patent.

Therefore, the proposed combination of the *Yonezawa* '509, *Hartley*, *Barry*, and *Haruna* patents fails to disclose at least an inner engaging member that is axially movably arranged on an outer periphery of a pull rod, a plurality of outer engaging members arranged on an outer periphery of an inner engaging member, and an output portion of a pull rod connected to the outer engaging members, all as required by pending claim 1.

For at least this reason, the proposed combination of the *Yonezawa* '509, *Hartley*, *Barry*, and *Haruna* patents fails to establish a *prima facie* case of obviousness with respect to claim 1, and reversal of this rejection is respectfully requested.

The remaining pending claims 4-6, 8, and 9, which depend from claim 1, contain all of the elements of claim 1, as well as their respective recited features. Accordingly, since the proposed combination of the *Yonezawa* '509, *Hartley*, *Barry*, and *Haruna* patents fails to establish a *prima facie* case of obviousness with respect to claim 1, the proposed combination of the *Yonezawa* '509, *Hartley*, *Barry*, and *Haruna* patents fails to establish a *prima facie* case of obviousness with respect to claims 4-6, 8, and 9, and reversal of this rejection is respectfully requested.

- D. The Yonezawa '354 patent does not cure the deficiencies of the proposed combination of the Yonezawa '509, Hartley, Barry, and Haruna patents with respect to claim 1, and therefore, does not amount to a *prima facie* case of obviousness with respect to claims 2, 3, and 7

The discussion below is focused on the apparatus of dependent claims 2, 3, and 7, which include all the features of independent claim 1, as discussed above.

Reversal of the rejection of claims 2, 3, and 7 is respectfully requested on the basis that the Yonezawa '354 patent does not cure the deficiencies of the proposed combination of the Yonezawa '509, Hartley, Barry, and Haruna patents with respect to claim 1, and thus the proposed combination fails to disclose or suggest every feature of the clamping apparatus according to claims 2, 3, and 7.

As will be discussed below, the Yonezawa '354 patent does not cure the deficiencies of the proposed combination of the Yonezawa '509, Hartley, Barry, and Haruna patents with respect to claim 1, from which claims 2, 3, and 7 depend.

Accordingly, claims 2, 3, and 7 are patentable in view of the proposed combination of teachings of the Yonezawa '354 patent and the Yonezawa '509, Hartley, Barry, and Haruna patents, since the proposed combination of these references does not constitute a case of *prima facie* obviousness with respect to claim 1, from which claims 2, 3, and 7 depend.

By way of review, the embodiments of claims 2, 3, and 7 require all of the features of pending claim 1, as discussed above.

As discussed in detail above, the Yonezawa '509, Hartley, Barry, and Haruna patents fail to disclose every feature of pending claim 1. Specifically, the Yonezawa '509, Hartley, Barry, and Haruna patents fail to disclose an inner engaging member that is axially movably arranged on an outer periphery of a pull rod, a plurality of outer engaging members arranged on an outer periphery of an inner engaging member, and an output portion of a pull rod connected to the outer engaging members, all as required by pending claim 1.

The *Yonezawa* '354 patent also fails to disclose an inner engaging member that is axially movably arranged on an outer periphery of a pull rod, a plurality of outer engaging members arranged on an outer periphery of an inner engaging member, and an output portion of a pull rod connected to the outer engaging members, all as required by pending claim 1.

The *Yonezawa* '354 patent discloses a clamping apparatus that includes a housing (11) having an annular driving member (16), into which a cylindrical pull rod (12) is inserted (abstract). An actuation member (26) is inserted into the pull rod (12) (abstract). As the pull rod (12) descends relative to the actuation member (26) a plurality of engaging balls (13) are projected outwards from the leading end of the pull rod (12) and are thus brought into butting contact with a lower step portion (8) of a stepped hole (2) in a workpiece (1) such that a driving member (16) pulls the workpiece (1) downward through the pull rod (12) and the balls (13) (abstract; col. 3, lines 17-55; col. 4, lines 11-20).

However, there is no disclosure in the *Yonezawa* '354 patent of an inner engaging member that is axially movably arranged on an outer periphery of a pull rod, a plurality of outer engaging members arranged on an outer periphery of an inner engaging member, and an output portion of a pull rod connected to the outer engaging members, as is required by pending claim 1.

Thus, none of the *Yonezawa* '354 patent and the *Yonezawa* '509, *Hartley*, *Barry*, and *Haruna* patents disclose an inner engaging member that is axially movably arranged on an outer periphery of a pull rod, a plurality of outer engaging members arranged on an outer periphery of an inner engaging member, and an output portion of a pull rod connected to the outer engaging members, all as required by pending claim 1.

Since none of the *Yonezawa* '354 patent and the *Yonezawa* '509, *Hartley*, *Barry*, and *Haruna* patents disclose an inner engaging member that is axially movably arranged on an outer periphery of a pull rod, a plurality of outer engaging members arranged on an outer periphery of an inner engaging member, and an output portion of

a pull rod connected to the outer engaging members, all as required by pending claim 1, these features are also not disclosed by the proposed combination of the *Yonezawa* '354 patent and the *Yonezawa* '509, *Hartley*, *Barry*, and *Haruna* patents.

For at least this reason, the proposed combination of the *Yonezawa* '354 patent and the *Yonezawa* '509, *Hartley*, *Barry*, and *Haruna* patents fails to establish a *prima facie* case of obviousness with respect to claim 1, from which claims 2, 3, and 7 depend, and reversal of this rejection is respectfully requested.



**VIII. Conclusion**

For the reasons set forth above, claims 1-9 of the pending application define subject matter that is not rendered *prima facie* obvious within the meaning of 35 U.S.C. § 103(a) by the proposed combination of the *Yonezawa* '509, *Hartley*, *Barry*, and *Haruna* patents or the further combination of the *Yonezawa* '509, *Hartley*, *Barry*, and *Haruna* patents with the *Yonezawa* '354 patent.

Reversal of the rejection of claims 1-9 is respectfully requested.

The Fee required by 37 C.F.R. § 1.17(c) was submitted on March 3, 2009. The Office is authorized to charge any additional fees associated with this communication to Deposit Account No. 02-0200.

BACON & THOMAS, PLLC  
625 Slaters Lane, Fourth Floor  
Alexandria, Virginia 22314-1176  
Phone: (703) 683-0500  
Facsimile: (703) 683-1080

Date: May 6, 2009

Respectfully submitted,  
  
/Patrick M. Buechner, Reg. #57,504/

PATRICK M. BUECHNER  
Attorney for Applicants  
Registration No. 57,504

**IX. CLAIMS APPENDIX**

Claim 1. A clamping apparatus, comprising:

a first block provided with a support surface that receives a supported surface of a second block,

a drive member axially movably inserted into the first block,

a pull rod projected toward a leading end beyond the support surface of the first block, and the pull rod is connected to the drive member,

an inner engaging member axially movably arranged on an outer periphery of the pull rod, the inner engaging member is adapted to be radially movable with respect to the first block, and the inner engaging member is adapted to be advanceable toward the leading end by a pressing arrangement,

a plurality of outer engaging members to be inserted into an engaging hole of the second block are arranged on an outer periphery of the inner engaging member, the plurality of outer engaging members are adapted so as to wedge-engage with the inner engaging member from the leading end side, and an output portion of the pull rod is connected to these outer engaging members, and

the plurality of outer engaging members are adapted to be radially inwardly movable by a returning arrangement.

Claim 2. The clamping apparatus as set forth in claim 1, further comprising:

a cover member that covers the plurality of outer engaging members from the leading end side is provided on a leading end portion of the pull rod.

Claim 3. The clamping apparatus as set forth in claim 2, further comprising:

a guide surface that narrows toward the leading end formed on an outer periphery of the cover member.

Claim 4. The clamping apparatus as set forth in claim 2, wherein the cover member and the plurality of outer engaging members are connected radially relatively movably and axially movably together.

Claim 5. The clamping apparatus as set forth in claim 4, wherein the plurality of outer engaging members are radially movably supported on a peripheral wall of the cover member.

Claim 6. The clamping apparatus as set forth in claim 1, wherein the first block is provided with a plurality of the support surfaces circumferentially at intervals, and

within a gap between adjacent outer engaging members is formed a discharge port for a cleaning fluid, and each discharge port is directed toward a respective support surface.

Claim 7. The clamping apparatus as set forth in claim 1, wherein the pull rod is urged toward the leading end by a balancing elastic member.

Claim 8. The clamping apparatus as set forth in claim 1, wherein  
the pull rod is relatively radially movable with respect to the drive member.

Claim 9. The clamping apparatus as set forth in claim 1, wherein  
the inner engaging member is arranged radially movably with respect to the  
pull rod.

**X. EVIDENCE APPENDIX**

There are no copies of evidence entered and relied upon in this appeal  
of the pending application.

**XI. RELATED PROCEEDINGS APPENDIX**

There are no related proceedings or decisions rendered by a court or the Board of Appeals in any proceeding identified in the related appeals and interferences section in the pending application.